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AUTHOR Dudczak, Craig A.; Baker, David
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ABSTRACT

Evaluators of argument are frequently confronted by conflicting claims. While these claims are usually based on probabilities, they are often resolved with the accepted claim treated as though it were "true," while the rejected claim is treated as though it were "false." Scenario testing is the label applied to a set of procedures by which competing claims are evaluated as "probabilistic" scenarios. Resolution of a proposition by scenario testing requires that an accounting of each substantiated scenario be made. Scenario testing begins with the assumption that conflicting claims should not be resolved by disjunctive choices. Rather, it assumes that descriptions and predictions provided by the debaters in a round are, by their nature, probabilistic. As a consequence, evaluation of a policy, whether the single policy offered by the Affirmative or the combined policies offered by the Affirmative and Negative are most reasonably evaluated when the probabilities of their descriptions and predictions are taken into account. An optimum policy choice, therefore, represents the efficacy of a policy (or policies) across the range of scenarios it must address. This procedure equalizes the burdens of the advocate and counter-advocate and provides a set of guidelines for evaluating their conflicting claims. (Author/HOD)

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Scenario-Testing: Decision Rules for Evaluating Conflicting Probabilistic Claims

Craig A. Dudczak
University of Oklahoma

David Baker
St. Mark's School of Texas

Speech Communication Association

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ABSTRACT:

Evaluators of argument are frequently confronted by conflicting claims. While these claims are usually based on probabilities, they are often resolved with the accepted claim treated as though it were "true," while the rejected claim is treated as though it were "false." Scenario-testing is the label applied to a set of procedures by which competing claims are evaluated as probabilistic scenarios. Resoluation of a proposition by scenario-testing requires that an accounting of each substantiated scenario be made. This paper develops an explanation of the scenario-testing procedure, its rationale, and the implications of its use in argumentation.

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Scenario-Testing: Decision Rules for

Evaluating Conflicting Probabilistic Claims

If there is a beginning point for this paper, it probably can be found in the evolution of arguments in recent policy topic debates. A few years ago there was a rare overlap between the High School and College resolutions. Many will recall the fairly "stock" Central American case which alleged the following:

1. Nicaragua is really a peace-loving nation.
2. The Nicaraguan military build-up is a response to U.S. military support/arms sales to its neighbors.
3. Curtailment of U.S. military intervention/arms sales to Central America would result in a negotiated settlement with Nicaragua.

While the particulars would vary from case-to-case, the preceding outline was a typical case approach. An equally typical "stock" response to the Central American case was often found in the following:

1. Nicaragua is really a Cuban/Soviet puppet.
2. The Nicaraguan military build-up is a prelude to regional political and military domination.
3. Curtailment of U.S. military intervention/arms sales would deliver Central America to Nicaraguan domination.

While this response also varied in case-by-case applications, it paralleled the sequence of claims made by the Affirmative advocate with fairly direct counter-claims. When confronted by these two disjunctive descriptions of reality in Central America, we, as debate critics, are forced to make a choice. If we accept the first description as true, we would almost invariably vote for the Affirmative. If we accepted the second, it would almost invariably result in a decision for the Negative. It has occurred to us, as it has undoubtedly occurred to others, that

the choice between these two descriptions of Central America both contained elements which might be true. As such, making a disjunctive choice between two probabilistic representations of reality is unsatisfactory.

It is because we feel that resolving conflicting claims as though they were disjunctive choices is not a satisfying or realistic evaluation of issues that we offer this paper. We propose that conflicting descriptions be treated as scenarios. In developing a perspective of treating conflicting claims as scenarios, we will offer an explanation of scenarios, examine their relevance as a metaphor for academic debate, and illustrate the implications of their use in academic debate. We label the perspective we offer "scenario-testing" because the acceptability of any single scenario necessarily includes an assessment of the probability of its determinant parts, and may conditionally consider its comparative ability to withstand alternative scenarios. Finally, we articulate a set of procedures for evaluating competitive scenarios.

The Nature of Scenarios

Scenario is a referent term which is most frequently found in fields associated with statistical analysis (Clapham et al., 171) in social, political, military, and economic sciences. Analytic procedures which often generate reference scenarios include operations analysis, operations research, systems engineering, management science, and systems analysis (Hoos xi, 42). Our definition of a scenario is taken from Slovic et al. (177) and stipulates that the essential characteristic of a scenario "consists of a series of events linked together in narrative form. Normatively, the probability of a multievent's scenario's happening is a multiplicative function of the probability of the individual links."

We think this definition suggests two functions of a scenario--one descriptive and the other predictive. The descriptive function of a scenario is to explain the relationships among a sequence of events necessary to arrive at a con-

clusion. The predictive function of a scenario addresses the question of how likely the scenario is to occur. To a large degree, description and prediction are inseparable in a scenario. The prediction of each event in a multievent sequence assumes its predecessor. The probability of each successive event allows the scenario description to continue to its conclusion. Nevertheless, separation of the descriptive and predictive functions of scenarios will allow us to better understand their dynamic interaction.

1. Scenarios as description.

In its simplest representation, a scenario is a story, a narrative, a specification of a sequence of events. In The Third World War, a speculative account of the events which would lead to a Soviet invasion of Western Europe and the subsequent progress of the war, General Sir John Hackett masterfully captures the story-telling aspect of a scenario-- So masterfully, in fact, that his novel enjoyed considerable success in the commercial market. While most scenarios aren't written for a general public audience, they nevertheless incorporate a narrative accounting of events. The narration gives coherence to the sequence of events. And the more carefully crafted the association among the events, the greater the believability of the prediction(s) made or implied by the scenario. But more about prediction later.

The descriptive function of scenarios gives meaning to events by relating them in time, hierarchy, sequence, salience, and the like. Of course, the innocuous label of "description" is not bias-free. A description, any description, carries the distortions of perception carried by the one offering the description. This is not even to assume an active bias on the part of the describer, for the distortions may equally be accounted for through the symbol system (Burke 44-62) or within the cognitive heuristics of the social actor (Tversky & Kahnemann, "Availability" 207-232; "Heuristics and biases" 1124-1131).

But an acknowledgment of bias in description is not to suggest an objective standard against which distortion can be measured. It has been argued by Schneider et al., (204-223) that our perceptual distortions only can be described in terms of their direction, but not in terms of their degree. Certainly, between symbolic interaction and constructivist notions of symbolic and phenomenal reality, we should not expect an objective measuring stick.

The point we wish to extract here is that the descriptive function of the scenario is subject to systematic distortion. As such, we offer a partial listing of the sources of bias which may infuse scenarios:

First, a scenario description is infused with a set of values, assumptions, and goals. Consider the primary differences between the two Central American scenarios offered in the introduction to this paper. The person who identifies with the first scenario (Nicaragua is really peace-loving, etc.) may be incapable of recognizing the second description as anything other than the "rantings of a neo-colonial imperialistic war monger." Of course the hyperbole is interchangeable. The values, assumptions, and goals held within a scenario represent a precommitment to instruments which become self-validating (Clapham et al., 171).

What frequently happens is that the perceiver, already wedded to the assumptions, goals, and values of a description becomes selectively biased in recognition of confirming instances and selectively ignorant of those disconfirming instances. As obvious as this caution may seem to be, Slovic et al., (176) warn that even those experts trained in analytic techniques are insensitive to their own biases.

On a similar vein, a self-fulfilling prophecy further creates a false sense of the validity of the assumptions initially accepted. As Jouvenal notes, "any so-called 'prediction' is always a starting point for examination of what should be done on the assumption that it is true, but also always an outcome of assumptions concerning what will have to be done to make it come true." (120)

A second source of bias in scenario description may be a tendency toward simplification of the description due to cognitive limitations (Slovic et al., 168-169). The number of variables and the complexity of their inter-relationships itself may make a simplification expedient, if not necessary. It does appear, however, that there tends to be a preference towards describing model scenarios in terms of those variables which are subject to quantification (Hoos 127, 133; Ascher, 253-254) at the expense of those variables which are subjective, intangible, and unquantifiable. Certain categories of variables, as Hoos notes, are thus excluded from active consideration in the model:

> While mention is made of "political, sociological, and cultural variables," such factors have proven elusive of capture and control by the "systematic" approach. Consequently, they have been omitted. Only those variables which could be handled quantitatively have been taken into account, and the accounting has remained largely economic. (78)

While description of social, political, and cultural variables are possible without their quantification in a scenario, their habitual exclusion, and perhaps the exclusion of other categories of unquantifiable variables, represents a systematic bias in scenario construction.

A third source of bias in scenario description is the bias in favor of the technical solution in preference to its alternatives. Part of the reason for this bias may be that the very act of constructing and testing scenarios tends to be performed by modelers who are more skilled in the construction of their models then they are in understanding the dynamics of the context in which the variables exist (Starr 1232; Ascher 254, 258). This is to say that the scenarios become abstracted from the events they purport to represent and they become reified in

in that they may be treated as a concrete object regardless of the correspondence with the events which gave them life. But the more important issue here is that a technical representation of an event may ignore a more commonplace understanding of the dynamics of a scenario. The tension between "expert" technical representations of scenarios with their assumptions of "normative" operations may conflict with non-expert representations of the same event. Technical people may accuse the public of neglecting facts and irrationality. Non-technical people may be equally prone to view technical solutions are esoteric and frivolous. Each side may be equally guilty of implying a universal rationality to their respective positions without ever bothering to articulate their base assumptions or hold them to challenge. (Otway & Winterfeldt 250) Since it is the technical model builders who are more likely to construct the descriptions, we probably need to be most sensitive to their tendencies toward reification of their models:

> Construction of abstract models intended to describe in mathematical terms the complex interralationships governing the process of economic growth has become one of the favorite occupations of economic theorists. Unfortunately, the lack of factual knowledge of conditions existing in the real world forces the model builder to base many, if not all, of his general conclusions on all kinds of a priori assumptions, chosen for their convenience rather than for their correspondence to observed facts. (Leontief 32)

This technical bias of model construction harkens back to the original qualifier on the use of scenarios--namely, that the assumptions, values, and goals of a scenario are never validated through the model if the model itself becomes tautologic. A scenario informs us of its assumptions which may be described and tested. Verification of the assumptions cannot validate the model because it can't inform us of what we haven't tested. At best, an attempt at verification

can only disconfirm assumptions. So that the ultimate test of a scenario is understood to occur when the assumptions and values are subject to critique outside the framework of the model. It is only when scenarios are held up against external criteria can their validity be verified, if only indirectly (Feyerband 33,38; Clapham et al., 173; Slovic et al., 178).

The descriptive function of the scenario gives the scenario plausibility and coherence. The predictive function of a scenario is what informs us of its probability. In this next section we will consider elements which determine a scenario's predictive ability.

2. Scenario as prediction

We will use the commonplace term "prediction" in a somewhat specialized way. Normally, we think of the term prediction as referring to future events, as in the statement, "If the United States curtails military assistance to Central America, Nicaragua will negotiate." However, there is also a retrospective sense in which we use predictions that is applicable to scenario construction. So, for instance, when one argues that a past event occurred for a particular reason--i.e., the Civil war was caused by slavery--one is engaging in this type of retrospection.

Scenarios make predictions to the extent that their interdependent parts are probabilistic. The scenario is the aggregation of the probabilities of the individual parts. As such, there are a number of concerns about the calculation of probabilities which need to considered when examining the predictive function of a scenario.

The first consideration, and we think one of the most important, is whether the predictive power of a scenario is primarily based upon objective or subjective probabilities. An objective probability, otherwise known as mathematical probability (Rieke & Sillars 21-26) is based upon empirical measures of verifiable events. Hence, the coin flip dictating chance occurrence of 50-50 for either

heads or tails is based on observation and measurement which can be confirmed independently of the particular observer. We will comment about the forecasts derived from empirical events, shortly. But for here suffice it to say that the objective/mathematical realm of probability is empirically verifiable.

The subjective realm of probability is ultimately based upon the strength of belief a person holds (Sjoberg 39). While a subjective probability may be informed by objective data, it is not dependent upon empirical verification. Perhaps an example here would clarify the distinction between objective and subjective probabilities. There is data which indicates that flying is about four times safer than auto transportation per passenger mile travelled. This objective data is empirically derived from the calculations of number of persons who avail themselves to each mode of transportation divided by the number of fatalities within each mode. Nevertheless, there are those individuals who have an abject fear of flying, and even when informed of the comparative data of safety for flying over driving, will prefer not to fly. This fear of flying may be taken to represent the "strength of belief" associated with subjective probability.

While all probabilities will be in some sense subjective, we believe it is important to distinguish between objective and subjective dimensions of probability. We think that the labels "probability" and "prediction" are frequently used in what Rieke and Sillars had called a "pseudo-logical" form. (211) Just the label "more than 50% probable" implies a mathematical objectivity. Unfortunately, however, we feel that mathematically precise statements are frequently offered without the benefit of corresponding empirical justification. We frequently offer such mathematical, pseudo-logical statements not only not having calculated a mathematical basis for our precise statements, these are frequently claims which are not capable of heving a mathematically precise base. When the Union of Concerned Scientists advances the minute hand on its atomic clock closer to midnight, it connotes the impression of an objective calculation. In point of argument, such

exercises, while symbolically powerful, are empirically void of verification. Sjoberg reminds us of the importance of distinguishing between probabilities which are empirically grounded from those which are not:

> All probabilities are in some sense subjective. However, from a pragmatic point of view it is clearly important to distinguish between the belief strength that a certain person holds and the belief strength that is justified by means of some theoretical and empirical considerations. (39-40)

Having emphasized the difference between objective and subjective probabilities, the subsequent problems one encounters in making predictions through scenarios will indicate which type of probability underlies the problem. Again, we acknowledge the interrelation between the two types, but this does not make them the same. The next several limitations will refer to problems with subjective probabilities.

Probably the most important consideration in subjective probabilities is the question of what factors might exagerate the strength of belief in excess of the grounds to support the belief. Sjoberg (39-57) articulates a set of variables which will influence the subjective probability reported. He notes that beliefs are first focused on what are perceived to be significant events. Beliefs are also clustered, may be based on sensory or perceptual data, as well as upon conceptually-based (abstract) information. Further, he notes that strength of belief is tied to emotion. Under strong needs, belief distortion is more likely. Cognitive systems, which underpin beliefs, may weaken under conditions of stress and create a need-aversive bias.

It is easy to view these variables as existing in individuals. The question, however, is whether they also influence collective or institutional beliefs. We think that there is substantial evidence to support the claim that popular myths,

legends, and fairy tales abound in our world which have demonstrated the potency of subjectively formulated beliefs. One example, cited by Paul Watzlawick in How Real is Real?, tells of a popular belief in Seattle when it was reported that more windshield "pithing" was occurring. Suddenly, more and more instances of the windshield pithing seemed to confirm popular notions that atmospheric conditions had changed or testing had caused the observed phenomenon. In point of fact, the mystery was resolved when it was determined that the heightened state of people's awareness caused them to look more closely at their windshields (and from the outside looking in, rather than from the inside looking out), and hence, report more instances of the phenomenon. Reportings of windshield pithing had increased. Actual instances remained constant.

One consequence of reliance upon subjective probability is a tendency toward overconfidence in accepting the belief (Sjoberg 45). A test for overconfidence has been suggested by Schaefer et al., (331) whereby the strength of any single belief is placed in context of its surrounding web of beliefs. Where a particular belief is found to be consistent with other beliefs surrounding a proposition, The more extensive the belief structure, the greater the confidence in the particular belief in question. Bunn (131, 132) systematizes this procedure by arguing that subjective beliefs are best adhered to when the result of utilizing the full amount of information available. He notes:

> . . . the underlying resolve of the decision analyst is to utilize the optimal amount of information. Furthermore, the generalized consistency requirement of a subjective probability used in decision analysis should reflect consistency with the totality of evidence and beliefs held by the individual at that time. (131)

In summary, subjective probabilities may be presented in a form which is indistinguishable from objective probabilities. They assume significance as

pseudo-logical statements which bear the terminology of objective probabilities, i.e., "probability, prediction," etc., but they do not encompass the empirical method which distinguishes objective probabilities. As a consequence, a subjectively stated probability creates a special problem for evaluation. If we choose to evaluate the likelihood of some future event based upon the strength of an advocates belief, we need to inquire about the basis of that belief, and test it against other beliefs which confirm it and which may themselves be subject to some empirical verification.

The third consideration to be made about the function of prediction in scenario construction addresses the objective category of probability. We should note that the context for which we consider objective probabilities often includes the terms "risk analysis," "forecasting," most types of "modeling," and "trend analysis." While these terms are not entirely interchangeable, they frequently display the characteristics of objective probabilities which is now addressed.

Probably the greatest problem with objective probabilities rests in the tendency by the user, even when trained in statistical techniques, to confuse the multiplication of independent events with their averaging. (Tversky & Kahneman 105-110). When defining a scenario, a prediction is often the conclusion of a sequence of predicate events, each of which contains a probability. The total probability of the event's occurrence, therefore, is the aggregation of each independent link. As Slovic et al., (177) note, "the more links there are in a scenario, the lower the probability of the entire scenario's occurrence. The probability of the weakest link sets the upper limit on the probability of the entire narrative." However, there is evidence that this routine is violated.

> Human judges do not appear to evaluate scenarios accoding to these normative rules. We have begum to collect data suggesting that the probability of a multilink scenario is judged on the basis of the average likelihood of all of its links. Subsequent strong links

> appear to "even out" or compensate for earlier weaker links, making it possible to construct scenarios with perceived probabilities that increase as they become longer, more detailed, and normatively less probable. (Slovic et al., 177-178)

While we will address this parallel further in the application of scenario-testing to academic debate, this problem appears to frequently beset the debate judge in his/her evaluation of multilink arguments. Rather than treating the probability of a particular consequence as the multiplicative probability of its predicate statements, debate judges may also engage in this type of "averaging" of probability to determine likelihood of a given claim.

Additional problems which accompany the calculation of objective probabilities are tendencies to underestimate the error and unreliability inherent in small samples of data (Slovic et al., 169), generalizing model assumptions of risk to social acceptability without checking the actual social acceptability of the risk (Starr 1237; Sjoberg 51,52), and undue optimism in calculating benefit to cost estimates (Pouliquen 2).

When aplied to trend analysis, the fundamental problem which exists for prediction is the assumption that empirical instances which have been validated from past experience will be recurrent in the future (Ascher 259; Hoos 131). Risk analysis, in addition to carrying the pseudo-logical ambiguity of the use of the term "risk," (i.e., corresponding to subjective probability, the label "risk" implies a calculable prediction, which quite frequently does not exist), there is an additional concern added concerning the social acceptability of of risk. Otway and Winterfeldt (252-253) categorize a number of social risk variables which influence whether a particular risk analysis will be acceptable including whether the risk is voluntary, the personal control over the outcome of risk exposure, uncertainty of the consequences of the risk exposure, lack of personal experience with the risk, etc.

Applications of forecasting to prediction also suffer from the absence of a general theory of forecasting, which often renders predictions as an ad hoc process (Bunn 127). Attempts to apply the most rigorous of models, often conceived to be applications of econometric modeling, despite their adaptation to new events and increasing sophistication of design, do not appreciably increase forecast accuracy, and in any event, do not show consistent results when measured against subsequent events appreciably greater than subjective forecasts. (Ascher 256-257).

One systematic problem with forecasts is their drop-off in accuracy as a function of time. As forecasts are extended into the future, they bear a linear relationship to their error term such that the error factor generally doubles with the passage of each increment of time (Ascher 258-259).

Of course, the statistical products are further distorted by judgmental (subjective) variables which enter into their interpretation. Statisticians are biased in their interpretation of their own data (Sjoberg 48), and extreme odds and small probabilities are equally problematic in being assessed both in the operation of a forecast model, as well in their subsequent interpretation (Sjoberg 49).

Even when trained in the use of statistical techniques, estimates of the probability of the occurrence of a future event are distorted by a tendency to ignore base rate information (Slovic et al., 165). An example of this would be the case where we know that the expected probability of a heads coming up in a trial of ten coin flips is one half (.50). When a trial yields only three heads, persons seem to be more influenced by the results of the immediate trial and tend to discount the predicted outcome of 50%. This constitutes ignoring the base rate information.

The consequence of these sources of error and bias has led Slovic et al. (165) to conclude that many predictions are often based upon a greater amount

of intuitive judgment than would be warranted given the empirical examination of the data available. The quality of the intuition sets the actual limit to the quality of the entire decision making process.

Hence, we see that scenarios, while incorporating both descriptive and predictive functions, suffer a set of theoretical and methodological limitations which are frequently masked by the appearance of statistical procedures. Nevertheless, scenarios represent an analytic procedure which has merit in two important regards.

First, because scenarios provide a narrative explanation of the sequence of events necessary to link events separated in time, they provide an explanatory power which is otherwise absent. And second, because scenarios attempt to provide a level of confidence of the probability of the occurence of the event, they have predictive power.

They are used as a tool in various analytic and decision making procedures because they specify their assumptions and attempt to translate these assumptions to social values weighted by the probability of their occurrence. As such, we believe they can constitute a useful metaphor for the evaluation of conflicting claims often found in academic debate.

Scenarios Applied to Debate

It is our contention that the rationale for accepting a claim in debate is the functional equivalent of accepting a scenario. In applying systems analysis to academic debate, Brock et al., (50-52) described a procedure which is fundamentally the construction of a scenario. Others have employed the procedures of systems analysis[1] in extending the two primary components of scenario construction--description of the system and evaluation of its predicted consequences. In contemporary debate, the resolution of policy choice will ultimately depend upon the adequacy of the description of component events in their dynamic interaction assessed against a set of goals specified for their

operation. When we take a case like the Central American case illustrated earlier in the introduction, we have a clear illustration of conflicting values and descriptions, as well as predicted consequences, confronting the decision maker in debate.

Standard procedures for the resolution of these conflicts often focuses upon default conditions. That is, who neglected to extend the third subpoint of the topicality argument, or was dropped the impact arguments of the first disadvantage, often becomes the standard for resolving the debate. Debate critics look for the least common denominator when rendering these types of decisons.

But in the case where conflicting scenarios, ala the two descriptions of Central America, contain antithetic assumptions, values, and predictive consequences, there is a gnawing sense of unreality. A vote for the Affirmative which is predicated upon the "truth" of their description and predictions assumes the "best case scenario." True, and only true, of it actually constitutes so high a level of probability as to render any alternative scenario implausible.

We think it is contingent upon the debaters to establish the support for their claims, and where this support results in the indeterminability of one scenario over its alternate, it would be more rationale to resolve the dispute by means other than the disjunctive choice we believe is exercised in decision making in academic debate.

The more rational approach, we contend, would be to evaluate the efficacy of a policy across the likely range of probable scenarios. We return to the Central American case to illustrate this point. We have already stated that a decision for the Affirmative policy of curtailing U.S. intervention/arms sales in Central America is justified if, and only if, the Affirmative scenario is substantially superior (more probable) than any of its alternatives. In the case where the Negative scenario(s) is/are evaluated as equal or greater in its/their likelihood of occurrence than the Affirmative's, a decision of the optimum

case must include consideration of the worst case scenario in addition to any other. So for Central America, the policy choice to curtail U.S. intervention/ arms sales would be sub-optimal, and probably counterproductive, in the case where the Negative scenario was probable.

The circumstance where no single scenario demonstrates superiority to its alternative(s) implies that the decision rule guiding selection of policy should be in favor of the policy which best accomodates the range of scenarios. We think this procedure would generally tend to favor policies oriented toward incrementalism (Pfau). We use the example of the bridge-builder to illustrate this opinion.

Let us assume that a bridge were to be constructed across a river. Let us further assume that different structural characteristics of types of bridges were suited to different capacity. In the case were type A bridge was optimal for a low traffic flow (let's say 5,000 cars per day), but sub-optimal for heavy traffic flow (let's say 15,000 cars per day), and type B bridge were the opposite in its characteristics (optimal for heavy flow, and sub-optimal for low flow), then the decsion for which type of bridge to build would depend upon the average capacity of each type of bridge to accomodate the projected traffic flows represented by each scenario. Of course, a theoretic type C bridge which was neither optimal for the extremes, but best suited across the range of estimates for traffic flow, would be optimal across the rabge of likely scenarios.

This is the representative example to the argument we are making. The best policy is the one which is best capable of accomodating the range of scenarios which are likely to occur. It rejects the case were an Affirmative tailors its solvency to assuming only its optimum scenario as much as it rejects the Negative policy which is optimal only under a single scenario. Of course, these types of comparisons may occur in debate, in which case, the decision rule is for the critic to apply the best-case and worst case scenario to each respective policy.

We believe there are at least two types of cases where the scenario-testing procedures may be applied. These represent the instance where the Negative does not defend an alternative policy as one type of case, with the other type being the instance where the Negative offers one or more alternative policies. (We will refrain from commenting on the desirability of single versus multiple alternative policies.)

In the case where the negative refrains from offering an alternative policy, we believe that the Affirmative scenario may be tested by challenging its description and prediction. We would support the position that a scenario represents a justification for action being taken (Dudczak 232-235). Absent the predicate for action, there is no requirement upon the Negative to offer an alternative scenario or policy which addresses the Affirmative scenario. In the case of Central America, the failure to substantiate the Affirmative scenario as probable, either through the demonstration of its inappropriate description or inadequate prediction, would serve as the logical failure to warrant the Affirmative's course of action. Because only a single scenario is presented does not establish its substantive probative value. It may be independently tested by criteria we have already articulated in earlier sections of this paper.

Of course, strategically, the Negative may elect to offer an alternative policy either predicated upon the Affirmative's scenario or its own scenario. If measured against the Affirmative's scenario, then the Negative policy would need to demonstrate it represents a more optimum response to the scenario than the Affirmative's policy. In the case were competing scenarios were not demonstrably superior to each other, then the decision rule would be to assess the competing policies across the range of scenarios offered.

To articulate the decision rules implied by scenario-testing, we would offer the following as a tentative set of guidelines to be applied to resolve conflicting claims:

1. When assessing a single policy (Affirmative) against a single scenario, the following guidelines to resolving issues would be appropriate:

A. The policy would be evaluated by its predictive ability to obtain the values and goals implied or stated in the scenario.

1. Evaluation of the probability of the scenario is a substantive issue to be resolved by the support offered for it. As part of its support is its ability to withstand challenge to the description or prediction of its subordinate parts.

2. The probability of a scenario is the multiplicative product of each of its dependent events. (The probability of the consequence is determined by multiplying the probability of each necessary event leading to the conclusion.)

3. The upper limit to the probability of the total scenario is set by the least probabilistic event of its dependent parts. (An event which has no demonstrable propability is assigned a probability of 0.0, which means that the conclusion is void.)

4. The assessment of subjective probabilities within the scenario is determined by its consistency with other associated beliefs which are grounded in some empirically verifiable events.

5. Prediction assumes correspondence between the mechanisms assumed by the evidence with the mechanisms provided by the proposal. Brock et al., (98) stipulate that such predictions normally consist of demonstration through pilot programs or through analogy with other, similar programs.

B. Descriptions of a scenario are subject to tests of coherence and consistency.

1. Coherence refers to the sequence of events leading to some conclusion which rationally (logically) follows from the sequence. (This postulate means that while there may be alternate routes to a particular conclusion (Bertalanffy 14), the advocate must provide the description of events ne-

cessary to arrive at the conclusion.

2. Consistency refers to unequivocal uses of language such that there is fidelity between the sense in which terms are used. Willard (5) goes further to say that prediction ultimately depends upon a consistent portrayal of reality.

2. When assessing a single policy (Affirmative) against conflicting scenarios, the preceding guidelines would be used with the addition of the following:

C. The policy should be evaluated against all scenarios which equal or exceed the referent (Affirmative) scenario. (The Affirmative policy is evaluated across the range of scenarios, including its own, as well as any scenarios hostile to it.)

1. The weighting of the optimum scenario shall be no greater than any scenario demonstrated to be equal in its probability.

2. The default condition if the consequences of the adverse (worst case) scenario is greater than the optimum (best case) scenario would be to suspend judgment on taking any action.

3. When assessing multiple policies (Affirmative and Negative) against a single scenario (Affirmative) one would use the criteria cited under "A" and "B" plus the following guidelines: (Negative accepts Affirmative description)

D. Both policies would be evaluated for their effects (both positive and negative) towards attaining the goals stipulated by the scenario.

1. Benefits would be evaluated by probability of effects, costs of implementation, and time frame for implementation through normal processes of the mechanisms offered for each policy.

2. Costs are evaluated as negative benefits and are incorporated into the the equation of the single scenario (Nagel & Neef 405).

4. When assessing multiple policies (Affirmative and Negative) against multiple scenarios (Affirmative and Negative), one would use all of the preceding

guidelines ("A" - "D") plus the following:

E. Each policy would be evaluated across the set of competing scenarios which have a probability equal to or exceeding the referent (Affirmative's) scenario:

1. The optimum policy would be the one which demonstrated the best effects at the lowest costs across the range of alternatives. (Neither policy could be evaluated in a void by assuming only its own "best case" set of circumstances.

2. Negative benefits (costs) within the frame of one scenario may be evaluated as benefits within the frame of reference of the optimum scenario. (For instance, the "cost" of intervention in the first Central American scenario might be evaluated as a "benefit" under the second scenario.

5. Assumptions about the responsibility of advocates to identify and sustain their positions.

F. While perhaps it goes without saying, the preceding guidelines are potential issues to be identified and applied by the advocates within the debate. A judge should refrain from making evaluations within or across scenarios when not supplied with reasons from the contending sides.

G. The evaluation of probabilities, descriptions, and other substantive issues in the debate assume non-intervention on the part of the judge. Nevertheless, the meaningfulness of any argument or issue to the debate requires that the advocates explain and support positions with evidence and analysis appropriate to their contentions.

While these guidelines may not be exhaustive to every contingincy which may arise within an adversarial process in debate, they represent a set of decision criteria which may be equitably applied to advocates on both sides of a proposition. Some of the implications from their application are discussed in the the closing section.

Implications of Scenario-testing

While we are tempted to discuss the implications of scenario-testing at length, we will briefly address the implications of scenario-testing as a decison rule to several contemporary perspectives in debate. We believe that the primary implication for scenario testing is that it assigns a decision procedure to resolving the issues of debate when they are in conflict. We do not claim scenario-testing as a new paradigm, but rather as an evaluative reference for resolving dispute across paradigms.

Himes (4) has already noted that the nature of paradigms does more to stipulate a way of viewing debate rather than providing the critic with a rule structure or framework for evaluating the issues of a debate. They don't provide a framework by which we may adjudicate the issues of a debate round. We believe we have already provided a rationale for considering scenarios as an appropriate metaphor for viewing debate. Let us now attempt to distinguish the characteristics of scenario-testing from several prevailing perspectives and practices in debate.

1. Scenario-testing as distinctive from hypothesis testing

Probably the single greatest difference between scenario-testing and hypothesis-testing deals with its treatment of presumption. Hypothesis-testing places presumption against the proposition being advocated (Zarefsky 432). Scenario-testing does not place presumption in favor or in opposition to either scenario being advocated. Presumption is a moot issue for scenario-testing. This is not to deny the types of presumption which may inhere in certain categories of issues which may be introduced into the debate (Whately 112-132). However, since the probability of any given scenario is determined without reference to a preference for the policy with which it represents the "best case," scenario-testing could be said to reject hypothesis-testing's perspective on presumption. This bears

at least some peripheral reference to conditional arguments as well. As it is practiced, conditional positions are frequently offered without careful consideration of their implications across the scenario or scenarios present in the debate (Hollihan 175-178). But if a conditional position is to be offered to that presented by the Affirmative, then it bears the responsibility of evaluation by the scenario or competing scenario offered for the debate.

Applying the decision rules we have articulated in the preceding, it would be our contention that conditional policies would be poorly suited to demonstrate their superiority across the range of the scenarios. Without development, a conditional argument would be hard put to demonstrate its relative superiority when assessed by the same criteria applied to the Affirmative's policy.

2. Scenario-testing as distinctive from policy-making.

On face value it would appear that scenario-testing accepts many of the same procedures which are advocated for policy making and its attendent reliance on systems analsysi and cost-benefit analysis. We would accept that the areas of overlap are many. But as with our distinction from hypothesis-testing, we would maintain that the treatment of presumption distinguishes scenario-testing from policy making. Policy making begins with the notion that change is inevitable, and the best policy is that policy which best adapts to change (Brock et al., 153; Lichtman & Rohrer 239-240).

This perspective assumes that the description of change offered by the Affirmative is correspondent with the nature of change in the system. Of course, an alternate scenario is an argument which at one or more levels disputes the description of the system, and with it its attendent assumptions about the nature of change. When the Negative offers an alternative description of the system with its prediction of events, it is contesting the assumption of the Affirmative description. If there is a residual presumption for the Affirmative policy, it is only within the context of its own scenario. When it fails to sustain its

as the only likely description of reality, it forfeits its presumption in favor of the change contingent upon its description. It may conceivably demonstrate that its policy is optimal across the range of scenarios, but it should not be presumed to be able to do so.

Of course, we have earlier taken the position that even without a competing scenario there are grounds for rejecting the presumption of change for a proposition as necessarily corresponding with the particular change advocated by an Affirmative (Dudczak 233), but the decision guidelines we have outlined would offer additional reason reason for rejecting this position.

3. Scenario-testing as distinctive from counter-warrants.

Unlike counter-warrants which are grounded in the consequences of the resolution as opposed to the implications of a particular policy (Paulsen & Rhodes 205-206), scenario-testing tests the consequences of a policy against an alternative set of descriptions in the evaluation of a policy's benefits and costs. When a policy is evaluated against the description of a single scenario, one of the strategies available to the Negative is the assessments of the policy's "negative benefits" which may be based upon its "remote consequences." (Hoos xviii-xix)

However, the strategy implicit in advancing an alternate scenario is to test the Affirmative policy outside of its own assumptions, which we believe are usually selected because they represent the "best case" scenario for the Affirmative. An Affirmative which describes its case in narrow terms (Brock 123), does so to minimize the likelihood of negative consequences. However, when the Negative reframes the debate in terms of a broader description or one which is antithetical to the policy's "best case" scenario, it makes the Affirmative burden greater because the policy is less likely to be adaptive outside of its narrow interpretation. (Brock et al., 124). Hence, scenario-testing does not require consideration of alternate policies which are possible under the Affirmative's

scenario as a means of testing the resolution. Rather, scenario-testing allows the Negative to redefine the circumstances against which the Affirmative's (and if it wishes, the Negative's) policy should be considered.

Conclusions

Scenario-testing begins with the assumption that conflicting claims should not be resolved by disjunctive choices. Rather, it assumes that descriptions and predictions provided by the debaters in a round are, by their nature, probabilistic. As a consequence, evaluation of policy, whether the single policy offered by the Affirmative or the combined policies offered by the Affirmative and Negative are most reasonably evaluated when the probabilities of their descriptions and predictions are taken into account. An optimum policy choice, therefore, represents the efficacy of a policy (or policies) across the range of likely scenarios it must address. This procedure equalizes the burdens of the advocate and counter-advocate and provides a set of decision guidelines for evaluating their conflicting claims.

Notes

[1]One should be especially aware of the extensive writing of Lichtman and Rohrer on this issue. Brock et al., probably deserve credit for the initial discussion and their text, Public Policy Decision-Making: Systems Analysis and Comparative Advantages Debate, probably contains the most comprehensive treatment of the implications of systems analysis as it pertains to debate.

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